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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,111	04/14/2004	Seung Duk Baek	5649-1279	6146

20792 7590 03/16/2007
MYERS BIGEL SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627

EXAMINER

THAI, LUAN C

ART UNIT	PAPER NUMBER
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2891

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/824,111

Applicant(s)

BAEK ET AL.

Examiner

Luan Thai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Request for Continued Examination

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/22/06 has been entered.

Claims **1, 3-39** are pending in this application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 8-14, and 19-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Wood et al. (RE. 36,469 of record).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1, 3, 8-14, and 19-35, Wood et al. (see specifically figures 6-11, Col. 10, line 25 to Col. 11, line 58) disclose a electronic module comprising monolithic

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microelectronic substrate (10) including a plurality of unseparated integrated circuit dice therein (Col. 4, lines 3+ and lines 52+), and a multilayer redistribution structure comprising interleaved conductive (44/46) and insulation layers (48/50), the redistribution structure extending across the surface of the substrate to overlie at least portions of each of the plurality of unseparated integrated circuit dice, the redistribution structure including at least one conductive layer including a compressive edge connector contact (54) facing opposite the side of the substrate and electrically coupled (solderless) to the unseparated integrated circuit dice, which comprise memory devices. Wood et al. further disclose a support of protective layer (40) of metal affixed to a surface of the substrate (10) and configured to support the connector contact to serve as a heat sink (Col. 11, lines 6+). Wood et al. also disclose the connector contacts being configured to mate with respective contacts of an edge connector that is configured to engage an edge of the substrate (Col. 10, lines 49+, Col. 11, lines 15). Wood et al. disclose a second protection layer (52) affixed to the redistribution structure. Note that the claimed of “the plurality of dice are connected to one another via the redistribution structure” is taken to be inherent in Wood et al. device since the unsingulated die being handled as a single component (e.g., memory device) is disclosed (Col. 4, lines 58+) and it is apparent that all unsingulated die in the component must be connected to one another for forming a single component (e.g., a memory device).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-7, 15-18, and 36-39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al. (RE. 36,469 of record) in view of Saia et al. (5,874,770 of record).

Regarding claims 4-7, 15-18, and 36-39, Wood et al. disclose the claimed invention as detailed above except for teaching the redistribution structure including a passive electronic device such as a capacitor, a resistor or an inductor.

Forming a passive electronic device such as a capacitor, a resistor or an inductor, in a redistribution structure is common in semiconductor art as disclosed by Saia et al. (See Figs. 7-12, Col. 6, line 30 to Col. 8, lines 24). It would have been obvious one skilled in the art at the time the invention was made to modify Wood et al.'s module by forming a passive electronic device in the redistribution structure as taught by Saia et al. By doing so it would be advantageous to have an efficient, cost effective, and space-saving fabrication method (see Saia's Col. 2, lines 30+), to make the power to the memory chips more uniform, and such modification is held to be within the ordinary designing ability expected of a person skilled in the art.

5. The following reference is cited as of interest to this application:

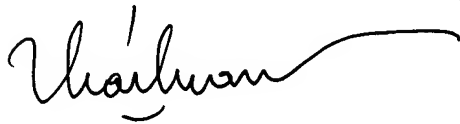
U.S. Pat. No. 5,661,339 (Col. 6, lines 37+) to Clayton is cited for showing the claimed structure of at least independent claims 1 and 12.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is 571-272-1935. The examiner can normally be reached on 8:00 AM - 4:30 PM, Monday to Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in dark ink, appearing to read 'Luan Thai', with a long, sweeping horizontal line extending to the right.

Luan Thai

Primary Examiner

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March 13, 2007